

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/011882

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-15 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-11 received by this Authority on 09.05.2005 with letter of 09.05.2005
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/4-4/4 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-11</u>	YES
		Claims <u></u>	NO
	Inventive step (IS)	Claims <u>1-11</u>	YES
		Claims <u></u>	NO
	Industrial applicability (IA)	Claims <u>1-11</u>	YES
		Claims <u></u>	NO
2.	Citations and explanations (Rule 70.7)		
1.	<p>The application relates to a tripod head having a device for balancing a weight torque occurring during a tilting movement of objects of different weights (such as cameras or such like) when the tilting range is large ($\pm 90^\circ$). The present report refers to the following documents:</p> <p>D1: DE 30 26 379 A1 D2: DE 27 17 772 B1 D3: DE 39 08 682 A1.</p>		
2.1	<p>Document D1 is considered the prior art closest to the subject matter of claim 1. Document D1 discloses (the references between parentheses relate to D1):</p> <p>a tripod head having a stator (2) and a rotor (4) which is mounted in such a way that it can be rotated relative to the stator about a tilt axis (3), and a balancing device (10) for balancing a weight torque occurring when the rotor carries out a tilting movement, which device has an energy storage unit (11) which subjects the rotor (4) to</p>		

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	<p>a restoring torque during the tilting movement, wherein the balancing device (10) has an additional device (16', 30, 31, 24, 19) which influences the transmission of the rotation of the rotor (4) to the energy storage unit and therefore also the restoring torque applied to the rotor (4) through the energy storage unit.</p> <p>It is further known from document D1 that the additional device (16', 30, 31, 24, 19) has a rotationally mounted shaft (3) and means (16', 30, 31, 24, 19) for transmitting the rotating movement of the rotor (4) to the shaft (3) in such a way that during the tilting movement the restoring torque applied to the rotor (4) by means of the energy storage unit (11) is influenced by the rotation of the shaft (3) about its axis (see page 8, last paragraph, below, to page 10, paragraph 3, and page 12, last paragraph, to page 13, paragraph 2). According to document D1 the restoring torque is influenced by a varying number of storage elements 11 and 11', which are influenced by the locking devices in figures 5 and 6.</p> <p>2.2 Document D2, which is likewise by the applicant, also discloses a tripod head with weight balancing for a camera mounted in a tiltable manner, and explicitly discloses that the restoring torque follows a sinusoidal curve (see column 5, line 45, to column 8, line 30, in particular column 7).</p>

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2.3	<p>Document D3 also concerns a tripod head having a device for balancing weight during a tilting movement. This tripod head likewise has an additional device for influencing the restoring torque using a stator, a rotor and a balancing device, an energy storage unit and means for influencing the restoring torque (see figures 1 and 2, and column 3, line 65, to column 5, line 66). Document D3 further discloses two different, parallel shafts (for example, 6 and 8 in figure 2), as well as the coupling of a plurality of balancing devices of this kind so as to balance out different angles of inclination and weights, and the coupling of these using a multi-stage gear.</p>
3.	<p>Novelty: documents D1 and D3 do not disclose that the resorting torque follows a sinusoidal curve, and documents D1 and D2 do not disclose a multi-stage gear. Consequently, the subject matter of claim 1 is novel over each of documents D1, D2 or D3, within the meaning of PCT Article 33(2).</p>
4.	<p>Inventive step: a person skilled in the art wishing to solve the problem of positioning cameras of different weights on a tripod head having a tilting device and a weight balancing feature, wherein the tilting range should be as large as possible ($\pm 90^\circ$), would, proceeding from the tripod head known from document D1, via document D2 arrive at a tripod head wherein the</p>

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	<p>weight balancing follows a sinusoidal curve, but not at an adjustment range as large as the one disclosed in the application, nor at the ability to make adjustments for cameras of widely varying weights, since, according to document D2, different energy storage devices (springs) are required to this end. Even if document D3 were consulted, it would still not be possible to arrive at the structure according to claim 1, since according to document D3 this would occur through the coupling of further energy storage devices (spring housings). A compact structure without the coupling of further additional devices, as in claim 1, would therefore not be possible in an obvious manner, even by a combination of all three documents. Consequently, the subject matter of claim 1 involves an inventive step within the meaning of PCT Article 33(3).</p> <p>5. The industrial applicability of a tripod head according to claim 1 is clearly established (PCT Article 33(4)).</p> <p>6. Claims 2-11 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty, inventive step and industrial applicability.</p>

Box No. VII **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

7. Independent claim 1 was not drafted in the two-part form specified by PCT Rule 6.3(b). However, in the present case the two-part form would appear to be appropriate. Accordingly, the features known in combination from the prior art (document D1) should have been placed in the preamble (PCT Rule 6.3(b)(i)) and the remaining features specified in the characterizing part (PCT Rule 6.3(b)(ii)).

In the present case, the features cited in Box V, point 2.1, above are known in combination from document D1 and should therefore be placed in the preamble of claim 1.

8. Contrary to the requirements of PCT Rule 5.1(a)(ii), the description does not cite documents D2 and D3 or indicate the relevant prior art disclosed therein.